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ABSTRACT

A reading instruction model that has proved to be successful with mildly handicapped students, regardless of their categorical label, is based upon three elements: curricular assessment, placement in an appropriate curriculum level, and data based instruction. For the curricular assessment, a sample passage (100 words) from each level (book) in a reading series is given to the student to read. A stopwatch is used to time the student's reading speed. Three random samples are selected for each level of the series. Testing begins at the level which is 1 year below the students' expected placement, which is the level where teachers think the student is reading. Testing extends over a 3-day period since student performance fluctuates from day to day. Data based instruction begins with the first story of the book in which placement was assigned. A specific and consistent error correction procedure is used for correcting errors. Somewhere in the final section of the story a 100-word passage is used as a timed sample to measure the accuracy and speed at which the student is reading. The book is then closed and the teacher asks the student 10 comprehension questions based on the entire story. Teachers keep a daily record of the three daily measures for accuracy, rate, and comprehension. An instructional format sheet is kept and serves as the intervention plan for every student. Two strategies used to increase oral reading accuracy are sound sheet practice and daily word drill. Techniques used to increase reading rate are prompts and repeated readings. Oral comprehension is improved by a backward chaining procedure and emphasis on question type. Reported pupil progress indicates that students using this model made over 1 month's gain to over 5 month's gain per month of instruction. (HOD)

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A Model for Direct, Data Based Reading Instruction

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A Model for Direct, Data Based Reading Instruction

A prevalent problem among mildly handicapped students is an inability to read grade level materials. Successful performance in mainstream American education is heavily influenced by one's ability to read and to perform independent work study tasks based upon what one has read. For this reason, resource/consulting teachers (R/CTs) at the University of Illinois learn to implement a reading instruction model that has proved to be successful with mildly handicapped students, regardless of categorical label (Idol-Maestas, Lloyd & Lilly, 1981). This paper will describe this direct, data based instructional model. It will also illustrate the gains in reading made by students who have used this model. These pupil progress data in reading have been collected over the past four and one half years by R/CTs who have served students in both elementary and secondary school sites in the following categories: learning disabled, educable mentally handicapped, behavior disordered, Title I remedial reading programs, and cross-categorical programs.

This model for instruction has been developed over the past eight years at the University of Illinois. It is based upon three crucial elements: curricular assessment, placement in an appropriate curriculum level, and data based instruction.

Curricular Assessment and Placement

A reading curriculum is selected that will form the base for assessment and instruction. Preferably this curricular series is the same that is used in the student's regular classroom, although the student is usually placed at a lower level. The assessment procedure to determine placement in the curriculum is referred to as a curriculum based assessment (CBA).

The procedures for constructing a reading CBA are outlined in a booklet which is obtainable from the University of Illinois' Special Education Department. They are similar to those used by Lovitt and Hansen (1976a). Basically, the procedure is as follows. A sample passage from each level (book) in a reading series is given to the student to read. The passage is 100 words in length. An arrow marks the beginning of the selected passage, a slash marks the end of the 100-word timed sample, and a bracket marks the end of the entire passage the student will read in order to obtain sufficient information for answering comprehension questions. A stopwatch is used to time the student's speed of reading for the 100-word section. Figure 1 contains an example of what one passage for one level of a CBA might look like. The text was copied from a basal reader and the comprehension questions were inserted. (Directions for writing comprehension questions are also available within the CBA booklet.) The questions marked as F represent factual questions; S represents sequential questions; and I represents inferential questions.

Insert Figure 1 about here

Three random samples are selected for each level of the series. Testing should begin at the level which is one year below the students' expected placement. Expected placement is the level where teachers think the student is reading, based on previous class performance and standardized test data. Testing should continue through the level students would complete that year if they were reading at grade level. For example, for a fourth grader believed to be reading at the second grade level, testing should begin at the first grade level (one year below expected placement) and continue through the fourth grade book (the book the student would finish by the end

Mr. deVarona hurried to her and wrapped his arms around her. "What's the matter, honey?" he asked.

The answer burst out. "I don't want to dive, Daddy. It scares me."

Her father rocked her back and forth, just as he had done when she was a baby. "There, there," he said. "You don't have to dive if you don't want to. You don't have to do anything you are afraid of."

Finally her sobbing stopped. Her father dried her face and sat beside her on the bed.

"I didn't know you felt that way about diving," he told her. "I certainly wouldn't have encouraged you to do it if I had known. But you see, Donna, you have a certain gift. I recognized it, and so did Coach McGuigan. It's something that very few people have. Do you understand what I'm talking about?"

"No," Donna admitted.

"I'm talking about the natural gift that you have of a fine body and the ability to make it move easily and gracefully. Those who have that gift can become great athletes. Those who don't, can't--no matter how hard they train."

Donna thought about what her father was saying, not understanding all of it.

"That's all I have to say to you," he continued. "We will stop the diving lessons for now."

F Why was Donna crying? (afraid to dive)

F Who was Mr. deVarona? (her father)

S After Mr. deVarona rocked Donna back and forth, what did he tell her? (she didn't have to dive if she didn't want to)

I Donna's father said that she had a natural gift. What did he mean? (good coordination, good athlete, ability to dive)

I Another person thought Donna was a good diver. Who was it? (Coach McGuigan)

Figure 1 Sample of a Curriculum Based Assessment for One Level of a Basal Reading Series.

of the year if reading at grade level). Testing extends over a three-day period. Students are tested across all levels as described on the first day. A second set of sample passages representing all levels are used on the second day, and the same procedure is followed on the third day. Testing over several days gives the teacher a clearer picture of the student's reading ability. Resource/consulting teachers affiliated with the University of Illinois have found that student performance does fluctuate from day to day. This may be partially due to inconsistency of sequenced reading difficulty in basal readers and partially due to erratic student performance. Median scores are figured for each level over which the students are tested. Students are placed in the highest level where their median score indicates they meet or exceed the criteria of 95% accuracy and 80% comprehension.

Data Based Instruction

After a student has been placed at a level within the curriculum, instruction is begun. Every day the student reads an entire story aloud. The student begins with the first story of the book in which placement was assigned.

Error Correction Procedure

The teacher uses a specific and consistent error correction procedure for correcting errors. Errors are defined as omissions, additions, substitutions, or any other "helps" the teacher provides. (Haring, Lovitt, Eaton, and Hansen, 1978). The error correction procedure that is used is displayed in Figure 2. Every time the student makes an error, the teacher uses the correction procedure that is appropriate for the word type. Step A is used if the student does name the word correctly after the teacher has called attention to the error. Step B is used when the word is phonetically irregular

or a sight word that cannot be logically sounded out. Step C is used if the word is a phonetically regular word that can be sounded out. The student always rereads the sentence in which the error is embedded. If the sentence is very long, then a phrase containing the word is reread. This procedure is continued until the reader reaches the last section of the story.

Insert Figure 2 about here

Measurement From A Timed Sample

Somewhere in the final section of the story a 100-word passage is selected. This passage is used as a timed sample to measure the accuracy and speed at which the student is reading. The procedure is identical to that used during assessment. The teacher makes no comment regarding errors, unless the student loses the place. In this case the student is redirected to the correct place. During this timed reading the teacher records the number of errors made and uses a stopwatch to measure the amount of time taken to read the timed sample. After the student finishes the timed sample, oral reading is continued until the story is finished. The error correction procedure is used for any remaining words in the story.

Comprehension

The book is then closed, and the teacher asks the student ten comprehension questions based on the entire story. The question types are factual, sequential, and inferential as they are on the curriculum based assessment. The usual distribution of question types is five to six factual, two sequential, and two to three inferential. These may vary depending upon the complexity of the story, but as the student progresses to upper level stories, more and more emphasis should be placed upon ability to infer.

Teacher: "What word?"

A. If correct: Praise!

B. If incorrect and not a sound out word:
Teacher: tell word
"What word?" _____.
"Yes, _____."

C. If incorrect and a sound out word:
Teacher: "Sound it out."

If response is incorrect:
Teacher: "My turn."
say it slow → m-a-n
say it fast → man

Teacher: "Our turn."
say it slow → m-a-n
say it fast → man

Teacher: "Your turn,"
say it slow → m-a-n
say it fast → man

The student always re-reads the entire sentence containing the error word, after the correction has been made.

Figure 2 Modified DISTAR Error Correction Procedure Used for Oral Reading Instruction.

Charting Daily Measures

Teachers keep a daily record of the three daily measures for accuracy, rate, and comprehension. Figure 3 illustrates a typical multiband chart with daily measurement data for oral reading accuracy, oral reading rate, and oral comprehension. This student, seen by R/CT Peggy Bullard, read first in Worlds of Wonder, second in Lands of Pleasure, and finally in Enchanted Gates of the MacMillan basal reading series. Note that criterion levels for passing performance were set at 94% for accuracy, 30 correct words per minute (cwpm) for rate, and 80% correct for comprehension. A differential marking system has been used so that a teacher can tell the difference between stories passed in the first reading versus those that required a second reading.

Insert Figure 3 about here

Instructional Format Sheet

For every student who receives direct instruction, an instructional format sheet is kept that serves as the intervention plan for that student. This sheet contains information describing the instructional task and the instructional intervention selected to teach the task. It also contains information pertaining to criterion, consequences, error correction procedure, amount of time to be spent on the task, and the manner in which the task will be measured. Figure 4 is an example of an instructional format sheet for the student whose progress is reported in Figure 3. It describes the precise conditions that were in effect when the student was reading in three MacMillan readers. This plan corresponds to the multiband

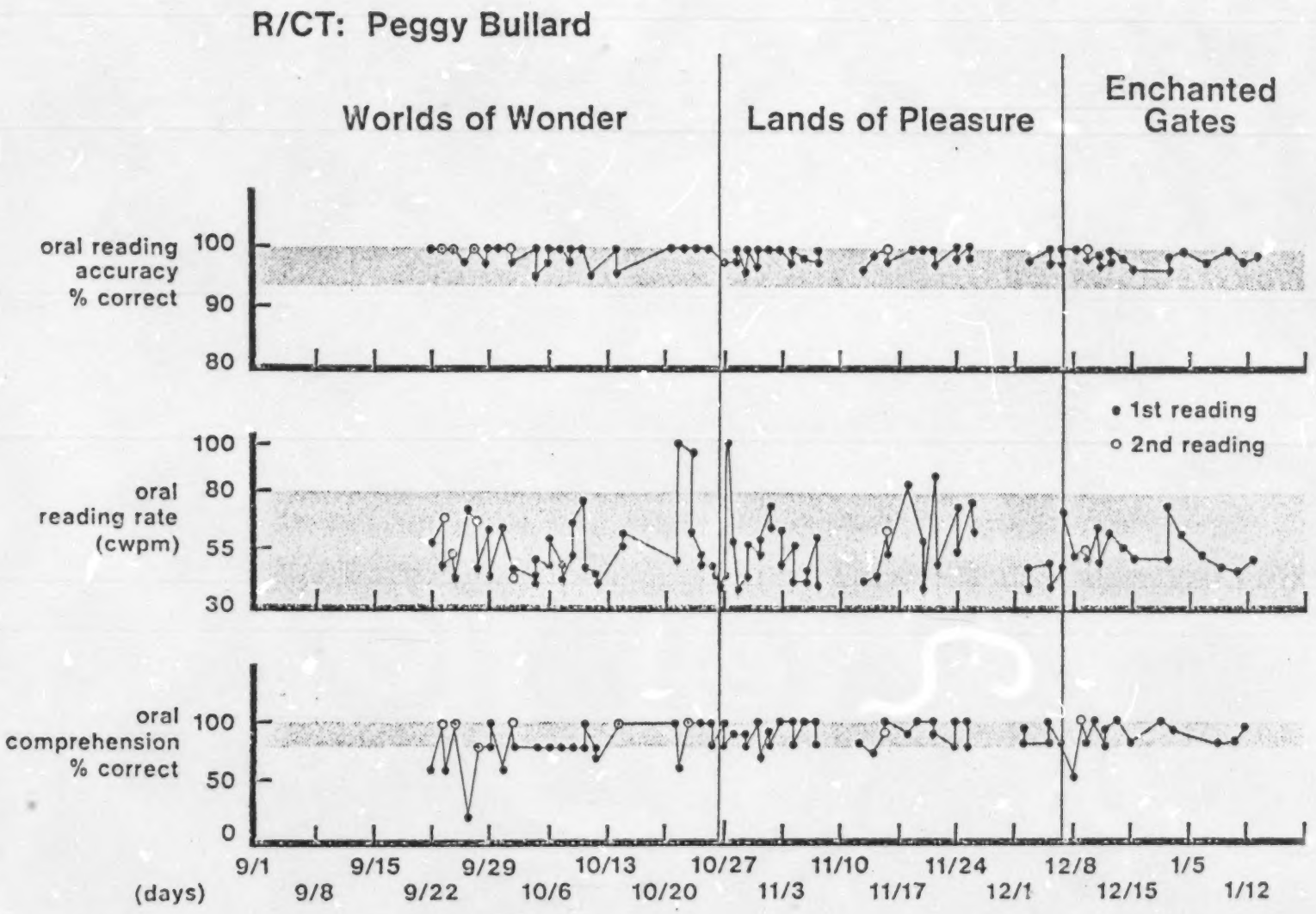

Figure 3 Sample of a Multi-Band Chart Indicating Daily Measures for Oral Reading Accuracy, Oral Reading Rate, and Oral Comprehension.

chart and reflects any alterations that might have been made in the student's program.

Insert Figure 4 about here

Commonly Used Interventions

Reading Accuracy

To increase oral reading accuracy teachers affiliated with the Resource/Consulting Teacher program at the University of Illinois have found two basic strategies to be useful. The first is designed to improve phonetic decoding and involves sound sheet practice. The second focuses on improving ability to read phonetically irregular words by use of daily drill. Of course, various other strategies are used with different students but these are the most commonly used. These two strategies can be easily implemented in regular classrooms.

Sound sheets. Students who do not know phonetically regular letter sound relationship are required to practice daily on these letters/sounds. Rather than arbitrarily selecting sounds, a more systematic procedure is used. Phonetically regular sounds are drawn in order of occurrence from the readers themselves. Sheets of not more than 30 phonetically regular sounds per sheet are constructed. Figure 5 is an example of a sound sheet constructed from Blue Bananas, the first preprimer in the Laidlaw basal reader series. This particular sound sheet contains 20 sounds represented in the first two rows. The subsequent eight rows contain randomly distributed repetitions of the same 20 sounds. This format allows for eight rows for practicing and two more rows for testing. Explicit directions for

INSTRUCTIONAL FORMAT SHEET

TASK	INSTRUCTIONAL INTERVENTION	CRITERION	CONSEQUENCES	ERROR CORRECTION PROC	TIME	MEASURE
Oral Reading Accuracy	Student reads story orally and is timed for accuracy on 100 word sample near story end 9/22/80	94% accuracy	Re-read until criterion is reached	1. What word? Sound it out 2. My turn our turn your turn 3. Say whole word 4. Repeat sentence	20 minutes	% correct
Oral Reading Rate	Same. Timed for rate also. 9/22/80	30 CWM	Same		Same	%CWPM
Comprehension	At the end of story, student will orally respond to 10 questions asked by teacher 9/22/80	80% accuracy	Re-read story until criterion is reached Prize received when book is finished	Correct by referring to context. Teacher gives cues to find answers: Remember? → yes ↓ No ↓ answer Who is question about? ↓ What is happening? ↓ Find page ↓ Find passage ↓ Read passage ↓ Find sentence/words which answer question ↓ Student answers question	5 minutes	% accuracte

Figure 4 Sample of an Instructional Format Sheet for the Student whose Daily Reading Measures are Displayed in Figure 3.

construction of sound sheets are also available from the University of Illinois' Special Education Department.

Insert Figure 5 about here

Practice on the sound sheets is done for three to five minutes daily prior to oral reading. The first sound sheet usually represents the first stories in the first preprimer and subsequent sound sheets represent the remaining readers up through the second grade. Most basal series have presented all sounds by this level. However, sound sheets could be used for any reading materials, not just basal readers.

A standard and consistent technique is used for practicing the sounds It has been adapted from the sound presentation technique used in DISTAR instructional materials (i.e., Englemann & Bruner, 1974). This technique is presented in Figure 6.

Insert Figure 6 about here

The student progresses through all levels of the sound sheets. Each sound sheet must be mastered with 100% accuracy on three consecutive days before the student progresses to the subsequent sheet.

Word drill. Phonetically irregular words that cannot be logically decoded and that are difficult for individual students are practiced in isolation. The words are usually written on index cards. These words are practiced for three to five minutes prior to oral reading. Mastery is achieved when a student reads all cards currently being worked on with 100% accuracy three times in succession.

Name_____ Blue Bananas A - 20 Sounds

wh	nt	ere	R	i	s	r	a	a	u
l	H	er	L	t	o	th	an	m	n
u	m	a	a	th	s	t	R	er	nt
H	wh	l	ere	L	i	o	r	an	n
i	wh	H	nt	er	ere	L	R	t	i
o	s	th	r	an	n	a	a	u	m
m	i	u	t	R	a	a	L	n	ere
an	er	r	nt	th	H	s	wh	o	l
ere	l	n	o	L	wh	a	a	s	H
R	th	t	nt	u	r	i	er	m	an

Figure 5. Example of a Sound Sheet Representing Twenty Sounds from Blue Bananas in the Laidlaw Series.

SOUNDS

A. Point to the sounds.
   Teacher says: "Tell me these sounds."

B. Point to each sound.
   Teacher says: "Get ready."

C. Touch the sound.
   The students say the sound.

D. Repeat problem sounds until the students can correctly identify all sounds in order.

E. Test on a new row(s) representing all sounds.

Figure 6 DISTAR Sound Presentation Technique.

Reading Speed

When a student is reading too slowly, the teacher sets the criterion for words read per minute at a level that the student can achieve. Then, the criterion is gradually increased to a faster speed. Caution must be taken not to make criterion changes that are too large, especially at the beginning. As an example, a student may be reading on the average of 25 correct words per minute (cwpm). Initially, the student would be allowed to pass stories that were read at this speed provided that criteria for accuracy and comprehension were met. Then the rate criterion might be adjusted to 30 cwpm, then to 35 then 45, etc. As the student improves, the increments for change are increased.

Two other techniques used to increase reading rate are:

Prompt. A simple statement during the timing such as, "Okay, read a little faster now" may be all that is needed to increase a slow rate.

Repeated Readings. Self-timed repeated readings practiced prior to the official timed sample reading has worked effectively with some students. This procedure would be faded once success in indicated by the data.

Rate of Progress

Skip and Drill. Once the student progresses, at the mastery level, over an extended period of time (minimum of four weeks) the teacher may decide to implement the "skip and drill" technique developed by Lovitt and Hansen (1976b). This procedure allows pupils to proceed from one section of a book to another on the basis of comprehension and oral reading rates. They may skip stories, if on the same day, all three scores (accuracy, rate, and comprehension) are better than 25% of their "baseline" averages. A drill procedure is incorporated if their scores remain at or below "baseline". Teachers often alter the contingencies for skipping or drilling stories, based upon individual student needs.

Reading Comprehension

The two major comprehension areas for which direct instruction and practice are offered are oral and written comprehension. For improving oral comprehension the two most commonly used strategies are a backward chaining procedure and emphasis on question-type.

Backward Chaining Procedure. If the student is unable to respond to relevant questions at the end of each story, appropriate questions are asked at the end of each page or paragraph, if necessary. As success is experienced, the number of paragraphs or pages is increased until mastery is reached on comprehension questions asked at the end of the story. An example of a standard technique of this type is illustrated in Figure 5. In this example the student was gradually prompted on this backward chaining fashion until the correct answer was given.

Question-Type Emphasis. The student may have difficulty with a particular type of comprehension question (i.e., factual, sequential, inferential). If so, then emphasis is based on developing accuracy in answering that specific type of question.

Written Comprehension. Students are almost always transferred from answering oral comprehension to writing written comprehension questions sometime during the direct instruction process. As an example, a student might answer ten comprehension questions orally. Then two of the same ten questions would be assigned for a written response completed for independent seat work. The number of written questions would gradually be increased while the number of oral questions were decreased until only written questions were given. Of course, the teacher must consider what kinds of measures of correct performance will be used. Some examples are: accuracy of response, correct grammar, proper syntax, correct

punctuation, correct spelling, and legibility of handwriting. If a number of measures are used, they should be introduced gradually for most students.

Pupil Progress Data

Over the past four and one half years, teachers using this direct, data based instructional model have served a total of 129 children in ten elementary and two secondary schools. They have worked in 1:1 or small group settings, or supervised cross-age tutors who provided instruction using the above described model. Teachers have worked with students in resource rooms representing five different types of special service categorizations: learning disablities (LD), educable mentally handicaps (EMH), behavior disorders (BD), Title I reading, and cross-categorical. Students were seen for varying periods, from one month to nine months. Fourteen different reading curricula were used. Data on student performance in each of these categories and curricula are shown in two ways. First, data for individual students in elementary schools are shown in Tables 1-5, while data for individual students in secondary schools are shown in Tables 6-10. Second, group data by and across exceptionality for elementary and high school sites are shown in Table 11.

In Tables 1-10, each table shows a) the reading series used, b) the student's grade level (year.month) when instruction began, c) the student's placement in the curriculum as the result of the CBA, d) the student's final placement in curriculum, determined by the number of stories mastered at the end of instruction, e) the student's final grade placement, and f) the ratio of the student's gain in reading per month of instruction in the program. For all tables, data have been rounded to the nearest complete month for curricular, grade, and age levels. Calculations, however, were computed on fractional months. See Appendix A for the formulae used to compute pupil progress data.

Table 1 contains progress data for 43 elementary LD students. The gains made by these students ranged from slightly less than one month (.8) to over 3 and one half months (3.6) per month of instruction. The mean gain for elementary LD students was two months per month of instruction. Two students returned to reading in the regular classroom. Table 2 shows the data for 21 elementary Title 1 students. The gains made by these students ranged from just over one month (1.2) to over 4 months (4.3) per month of instruction. The average gain was over two and one half months (2.6). One student returned to the regular classroom for reading instruction. Table 3 illustrates progress data for nine BD students whose gains ranged

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Insert Tables 1 and 2 about here

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from one month (1.0) to over three months (3.3) per month of instruction; their mean gain was nearly two months (1.9). Table 4 contains the data for six students in an elementary cross-categorical classroom. Their gains ranged from one month (1.0) to over six and one half months (6.8) per month of instruction, with a mean of nearly three and one half months (3.4).

Table 5 reflects the reading gains made by seventeen elementary EMH students. These students attended primary self-contained classes prior to R/CT instruction and had not received curricular instruction in reading. Therefore, instead of classifying them by initial grade level, they are identified by chronological age at the time they began direct instruction with an R/CT. Two students made one month's progress per month of instruction, while one student made three month's progress. The EMH students averaged one and one half month's gain per month of instruction.

Table 1

Pupil Progress Data for Elementary Resource Students
Labeled Learning Disabled

Reading Series	Initial Grade Level	Initial Curric Placement	Final Curric Placement	Final Grade Placement	Mo Gain per Mo in Prog+
LA	1.1	1.0	1.4	1.4	1.6
EC	1.2	1.0	1.3	1.4	1.5
LA	1.5	1.0	1.5	1.9	1.3
LA	1.5	1.0	1.5	1.8	1.8
LA	1.5	1.0	1.4	1.9	1.1
LA	1.6	1.0	1.4	1.9	1.3
HO	2.0	1.6	2.5	2.5	1.6
HO	2.0	1.2	2.5	2.8	1.5
HO	2.0	1.3	2.1	2.8	.8
MM	2.0	non-reader	1.5	2.4	1.3
HO	2.0	1.1	1.6	2.3	1.7
HO	2.0	1.3	2.4	2.6	1.3
HR	2.0	1.0	1.7	2.4	1.8
GN	2.0	1.0	2.2	2.4	2.8
HR	3.0	1.3	2.1	3.4	1.8
LA	3.0	2.3	4.2	3.9	2.2
HO	3.0	1.0	2.7	3.8	1.6
AW/GN	3.0	1.0	3.2	3.9	2.2
MM	3.1	2.5	3.3	3.4	1.8
MM	3.1	1.3	1.7	3.4	1.2
EC	3.1	1.0	2.2	3.9	1.4
EC	3.2	2.0	2.4	3.9	3.5
MM	4.0	1.3	4.5	4.8	3.5*
MM	4.0	3.5	4.5	4.3	3.0*
SC	4.0	3.0	4.0	4.9	1.0
SC	4.0	1.6	3.5	4.9	1.8
LA	4.0	2.0	3.1	4.3	3.6
MM	4.0	2.8	4.7	4.9	2.2
LA	4.1	2.5	3.6	4.4	3.6
MM	4.1	3.5	4.2	4.4	2.3
MM	4.1	1.3	1.7	4.4	1.3
SP	4.1	2.6	4.9	4.8	3.0
LA	4.1	2.5	3.6	4.4	3.6
EC/MM	5.0	1.3	4.3	5.8	3.4
MM	5.0	1.2	2.2	5.8	1.1
LA	5.0	3.5	5.2	5.6	2.5
LA	5.0	4.0	5.4	5.8	1.6
MM	5.2	1.7	2.6	5.4	3.0
LA	6.0	3.5	5.7	5.9	2.2
HR	6.0	1.3	2.5	6.1	2.8
LA	6.0	5.0	5.4	6.2	1.5
LA	6.0	2.6	4.1	6.9	2.1
SC	6.0	3.0	4.2	6.8	1.5

\+ 9 mo = 1 school year

* returned to regular class

AW - Addison Wesley
EC - Economy
GN - Ginn
HO - Holt
HR - Harper Row
LA - Laidlaw
MM - MacMillan
SC - Scott Foresman
SP - Sprint

Table 2

Pupil Progress Data for Elementary Resource Students in Title I Programs

Reading Series	Initial Grade Level	Initial Curric Placement	Final Curric Placement	Final Grade Placement	Mo Gain per Mo in Prog+
EC	1.1	1.0	1.4	1.4	1.3
EC	1.1	1.0	1.8	1.8	1.2
EC	1.5	1.0	1.8	1.8	2.7
EC	1.5	1.0	1.9	1.9	2.0
MM	2.1	1.0	2.8	2.9	2.3
MM	2.1	1.3	2.8	2.9	1.9
MM	2.1	1.6	2.3	2.4	2.3
MM	2.1	1.4	1.7	2.3	2.0
MM	2.1	1.4	2.0	2.4	2.0
MM	2.1	1.3	2.2	2.4	3.0
EC	2.5	1.0	1.8	2.9	2.0
EC	2.5	1.0	2.8	2.9	4.3
MM	3.0	1.3	4.0	3.6	4.0*
EC	3.0	2.0	3.1	3.4	2.5
MM	3.5	2.5	3.5	3.8	3.0
MM	3.5	1.2	2.7	3.9	3.5
MM	3.5	1.6	3.0	3.9	3.0
EC/MM	5.0	1.6	5.0	5.8	3.8
MM	5.0	1.6	3.1	5.4	3.3
EC	5.0	3.5	4.2	5.4	1.8
EC	5.0	3.5	5.1	5.8	1.8

+ 9 mo = 1 school year
* returned to regular class

EC - Economy
MM - MacMillan

Insert Tables 3, 4, and 5 about here

Table 6 contains the data for five secondary LD students, who had gains ranging from over two months (2.1) to 5.9 months gain per month of instruction. The mean gain for secondary LD students was four months. Table 7 shows data for 15 secondary Title I students, who had gains ranging from two months to over five months, with a mean of over three months (3.2) per month of instruction. Table 8 shows data for one secondary BD student who made over two and one half month's gain per month of instruction. Table 9 reflects data for eight secondary cross-categorical students whose gains ranged from one month to over five months (5.4) with an average of over two month's gain per month of instruction. Table 10 shows data for four secondary EMH students whose gains ranged from over one month (1.3) to over three months (3.3), with a mean of nearly two and one half months (2.4) per month of instruction. Note that one of these students was an eleventh grade non-reader who began reading successfully for the first time under this instructional model.

Insert Tables 6, 7, 8, 9, and 10 about here

Table 11 shows the gain for each exceptionality category across elementary and secondary school sites. The average for elementary and secondary school students, added together, shows gains of three months for LD, Title I, and cross-categorical students and gains of at least two months for BD and EMH students. The overall gain for elementary students was 2.3 months per month of instruction, compared to 2.9 months gain for secondary students.

Insert Table 11 about here

Table 3

Pupil Progress Data for Elementary Resource Students
Labeled Behavior Disordered

Reading Series	Initial Grade Level	Initial Curric Placement	Final Curric Placement	Final Grade Placement	Mo Gain per Mo in Prog+
SRA	1.5	non-reader	1.3	1.8	1.0
EC	3.0	1.3	2.0	3.4	1.5
EC	3.0	1.0	1.7	3.4	1.8
MM	4.0	1.0	2.5	4.8	1.8
EC	4.0	1.0	2.4	4.4	3.3
MM	4.0	2.0	3.5	4.8	1.8
MM	5.0	3.0	4.5	5.8	1.8
EC	5.0	3.5	4.5	5.4	2.3
EC	5.0	3.5	4.4	5.4	2.0

Table 4

Pupil Progress Data for Elementary Resource Students
in Cross-Categorical Programs

Reading Series	Initial Grade Level	Initial Curric Placement	Final Curric Placement	Final Grade Placement	Mo Gain per Mo in Prog+
EC	1.8	1.0	1.1	1.9	1.0
EC	2.1	1.0	2.5	2.3	6.8
EC	2.5	2.0	2.9	2.7	4.5*
GN	3.0	3.0	4.5	4.0	2.6
GN	4.0	3.0	3.6	4.3	2.6
GN	4.0	3.0	3.5	4.3	2.6

+ 9 mo = 1 school year
* returned to regular class

EC - Economy
MM - MacMillan
GN - Ginn
SRA - Science Research Associates

Table 5

Pupil Progress Data for Elementary Resource Students Labeled Educable Mentally Handicapped

Reading Series	Age at Beginning of Instruction Yr.Mo	Initial Curric Placement	Final Curric Placement	Age at End of Instruction Yr.Mo	Mo Gain per Mo in Prog+
MM	7.5	1.0	1.4	7.7 1/2	1.6
MM	7.6	1.0	1.5	7.10	1.3
MM	7.11	1.0	1.3	8.1	1.5
MM	8.1	1.0	1.7	8.5	1.8
MM	8.3	1.0	1.7	8.7	1.8
MM	8.4	1.0	1.4	8.7	1.3
MM	8.6	1.0	1.4	8.10	1.0
MM	8.8	1.0	1.2	8.9 1/3	1.5
EC/MM	8.8	1.0	2.0	9.4	1.2
MM	8.10	1.0	1.3	8.11	3.0
EC/MM	8.11	1.0	2.0	9.7	1.1
EC	9.0	1.0	1.7	9.4	1.8 *
MM	9.0	1.3	1.8	9.4	1.3 *
MM	9.4	1.3	2.0	9.8	1.5 **
MM	9.6	1.0	1.8	10.1	2.0 **
MM	9.7	1.3	1.75	9.11 1/2	1.0 **
MM	9.10	1.0	1.4	10.1 1/2	1.1

+ 9 mo = 1 school year

EC - Economy
MM - MacMillan

* Return to regular class via transition program.

** These students were unsuccessfully taught in another curriculum from 1 to 4 1 to 4 months prior to beginning the MacMillan Series.

Table 6

Pupil Progress Data for Secondary Resource Students
Labeled Learning Disabled

Reading Series	Initial Grade Level	Initial Curric Placement	Final Curric Placement	Final Grade Placement	Mo Gain per Mo in Prog+
BM	10.0	5.0	6.1	10.3	3.3
CR	10.0	1.0	2.7	10.3	5.9
CR/BM	10.1	5.0	5.7	10.3	5.0
BM/LIT	10.2	6.0	8.1	10.8	3.5
CR/BM	11.2	4.0	5.5	11.9	2.1

Table 7

Pupil Progress Data for Secondary Resource Students
in Title I Programs

Reading Series	Initial Grade Level	Initial Curric Placement	Final Curric Placement	Final Grade Placement	Mo Gain per Mo in Prog+
CR	10.0	1.0	1.9	10.3	4.8
BM	10.1	7.0	7.4	10.3	5.5
BM	10.1	7.0	7.3	10.3	3.0
BM	10.1	5.0	5.5	10.3	4.9
CR/BM	11.2	4.0	5.7	11.8	2.8
BM	11.2	5.0	6.5	11.7	3.0
BM	11.2	6.0	7.8	11.8	2.9
BM	11.6	9.0	9.5	11.8	2.5
BM	11.6	5.0	5.5	11.8	2.5
BM	11.6	6.0	6.4	11.8	2.0
CR	11.6	2.0	2.6	11.8	2.8
BM	11.7	6.0	6.2	11.8	2.0
BM	11.7	9.0	9.4	11.9	2.0
BM	11.8	7.0	7.3	11.9	2.5
BM	12.3	5.0	5.4	12.4	4.5

+ 9 mo = 1 school year

BM - Bookmark Series, Harcourt Brace
CR - Corrective Readings, Science Research Associates
LIT - Lit book used in regular class

Table 8

Pupil Progress Data for Secondary Resource Students Labeled Behavior Disordered

Reading Series	Initial Grade Level	Initial Curric Placement	Final Curric Placement	Final Grade Placement	Mo Gain per Mo in Prog+
BM	10.7	4.0	4.2	10.7.75	2.6

Table 9

Pupil Progress Data for Secondary Resource Students in Cross-Categorical Programs

Reading Series	Initial Grade Level	Initial Curric Placement	Final Curric Placement	Final Grade Placement	Mo Gain per Mo in Prog+
PL	9.0	1.0	1.6	9.3	2.0
PL	9.0	4.0	5.0	9.3	3.0
PL	9.0	4.0	4.3	9.3	1.0
PL	9.0	4.0	4.6	9.3	2.0
PL	9.4	4.0	7.0	9.9	5.4
PL	9.4	5.0	6.0	9.9	1.8
PL	10.0	4.0	5.0	10.7	1.3
PL	12.0	5.0	7.0	12.9	2.0

Table 10

Pupil Progress Data for Secondary Resource Students Labeled Educable Mentally Handicapped

Reading Series	Initial Grade Level	Initial Curric Placement	Final Curric Placement	Final Grade Placement	Mo Gain per Mo in Prog+
CR	10.2	3.0	3.3	10.3	1.3
CR	11.2	non-reader	1.3	11.3	3.0
BM	12.2	5.0	5.3	12.4	2.0
CR	12.2	4.0	4.5	12.4	3.3

+ 9 mo = 1 school year

PL - Pal Paperback Series
CR - Corrective Reading, Science Research Associates
BM - Bookmark Series, Harcourt Brace

Table 11

Comparison of Reading Gains of Students Receiving Direct, Data Based Instruction Model by Exceptionality Categories in Elementary and Secondary School Sites

PART A: Summary of Reading Gains by Category in Elementary and in Secondary School Sites

Elementary Resource Students

Category	Number	Mean gain per month in program
Learning Disabled	43	2.0
Title I	21	2.6
Behavior Disordered	9	1.9
Cross-Categorical	6	3.4
Educable Mentally Handicapped	17	1.5
TOTAL	96	MEAN 2.3

Secondary Resource Students

Learning Disabled	5	4.0
Title I	15	3.2
Behavior Disordered	1	2.6
Cross-Categorical	8	2.3
Educable Mentally Handicapped	4	2.4
TOTAL	33	MEAN 2.9

PART B: Total Reading Gains for Each Special Service Category

Category (elementary and secondary)	Number	Mean gain per month in program
Learning Disabled	48	3.0
Title I	36	3.0
Behavior Disordered	10	2.3
Cross-Categorical	14	2.9
Educable Mentally Handicapped	21	2.0
TOTAL	129	MEAN 2.6

Summary

This paper offers a description of a direct instruction methodology that has been used to teach reading disabled students in five different special service categorizations. The reported pupil progress data indicate that students using this instruction model made from over one month's gain to over five month's gain per month of instruction. The data indicate that secondary students made slightly larger gains than elementary students, and that LD, Title I, and cross-categorical students gained slightly more than BD and EMH students. These differences, however, are relatively small. Nearly all students, regardless of categorization, made substantial gains over time.

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Appendix A

The formuale for computing progress through the curricula for all tabled data were:

Step 1: $\frac{\text{Actual Rate of Story Completion}}{}$

$$= \frac{\text{Total number of stories completed}}{\text{Actual number of months of instruction}}$$

Step 2: $\frac{\text{Normal Rate of Story Completion}}{}$

$$= \frac{\text{Total number of stories completed}}{\text{Expected number of months of instruction}}$$

Step 3: $\frac{\text{Step 1}}{\text{Step 2}}$ or $\frac{\text{Actual Rate of Story Completion}}{\text{Normal Rate of Story Completion}}$